Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In the Matter of	)	
	)	
REGIONET WIRELESS LICENSE, LLC	)	
	)	File No.
Amendment of Part 80 of the	)	
Commission's Rules Concerning Automated	)	
Maritime Telecommunications System Stations	)	

To: The Commission

PETITION FOR RULE MAKING

REGIONET WIRELESS LICENSE, LLC

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703/525-9630
Its Attorney

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SUMMARY OF THE FILING

RegioNet Wireless License, LLC respectfully requests that the Commission commence a rule making proceeding looking toward reducing the regulatory burdens imposed on applicants for Automated Maritime Telecommunications System stations.

Because all parties are concerned about a potential for interference from AMTS stations to Television Broadcast stations on Channels 10 and 13, the Commission's Rules require that an AMTS application be supported by an engineering study. However, there has not been shown to be any correlation among the electromagnetic, equipment and regulatory environments of 1999 and the prescribed method for the engineering study, which was adopted in 1982 and which was based on limited data obtained in 1975.

The Commission should amend its rules in the light of new information presented by RegioNet. RegioNet presents two expert technical studies. One study demonstrates that today's TV receivers are substantially less vulnerable to adjacent channel interference than those of 1975. The other study provides a new analysis of interference potential, based on later learning.

The Commission should find that changed circumstances and the experience of AMTS operators and broadcasters lead to the conclusion that the Commission should eliminate the requirement for the filing of engineering studies with AMTS applications. AMTS licensees should continue to be responsible for avoiding and eliminating interference to reception on broadcast Channels 10 and 13. RegioNet suggests an addition to the Commission's Rules to provide further protection to TV reception in the Top 25 markets.

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To: The Commission

PETITION FOR RULE MAKING

Regionet Wireless License, LLC, by its attorney, respectfully requests that the Commission commence a rule making proceeding looking toward amendment of Part 80 of the Commission's Rules with respect to Automated Maritime Telecommunications Systems (AMTS). In support of its position, RegioNet shows the following.

About RegioNet

RegioNet has filed applications for new AMTS stations and an application is pending for consent to assignment to RegioNet of outstanding AMTS authorizations from Fred Daniel d/b/a Orion Telecom (Orion).[1] Orion is one of only three licensees of AMTS systems and holds licenses for AMTS systems along the Pacific and Atlantic Coasts, the west coast of Florida, Hawaii, the Great Lakes, and the Erie Canal. Orion commenced operation of its system nearly five years ago and has steadily expanded its coverage and service. Accordingly, Orion is well positioned to suggest the deregulation requested herein.

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[1] Fred Daniel controls RegioNet and intends to continue to control RegioNet.

Historical Background

The Commission allocated frequencies for Inland Waterways Communications Systems in 1981, by finding that

> it is in the public interest to provide for a fully automated, integrated, interconnected, river-wide, maritime communications system on the Mississippi River System. Further, we find that this service can best be provided in the 216-220 MHz band and, therefore, are allocating frequencies in the 216-220 MHz band for use by such an automated, integrated system or systems on a not to interfere basis with television reception,

Amendment of Parts 2, 81 and 83 of the Commission's Rules to Allocate Spectrum for an Automated Inland Waterways Communications System, 84 FCC 2d 875, recon., 88 FCC 2d 678 (1981), aff'd sub nom. WJG Tel. Co., Inc. v. FCC, 675 F.2d 386 (D.C. Cir. 1982) (IWCS Order). Subsequently the Commission expanded the authorized service area of the AMTS to the Gulf Intracoastal Waterway, 51 RR 2d 440 (1982), and the Gulf of Mexico, 56 RR 2d 1613 (1984), and then expanded the allocation nationwide, 6 FCC Rcd 437 (1991), also expanding the concept and name of the service to AMTS.

From the beginning, an important concern for all parties has been that of avoiding harmful interference to reception of Television Broadcast stations on channels 10 and 13. Since 1981, the Commission has made provisions to afford

> protection to TV receivers on channel 10 and 13. In general, stations will be authorized subject to the condition that no harmful interference be caused to television reception within the grade B contour. In addition, coast station transmitting facilities situated within 105 miles (169 kilometers) of a channel 13 TV station or 80 miles (129 kilometers) of a channel 10 station will be authorized only on the basis of an engineering determination of the potential interference area,

IWCS Order at 897. A fundamental principle of the Commission's AMTS Rules "is that no harmful interference be caused to television reception. If such interference does occur, the

AMTS coast station must eliminate any interference to TV reception it causes within the Grade B contour or discontinue operation," Amendment of Parts 2 and 80 of the Commission's Rules Applicable to Automated Maritime Telecommunications Systems (AMTS), 6 FCC Rcd 437, 438 (1991).

The Commission has provided a clear and succinct explanation of its deliberations regarding AMTS and its

> concern about the potential for interference to reception of television, particularly channels 13 and 10, and conditioned the operation of AMTS coast stations on the requirement that "no harmful interference will be caused to television reception." Section 80.215(h). Channel 13 (210-216 MHz) is adjacent to the AMTS band so there is a potential for adjacent channel interference.
>
> The Commission further adopted some specific provisions to minimize the possibility of interference to television reception. Applicants proposing to locate a coast station within 169 kilometers (105 miles) of a TV channel 13 station or 129 kilometers (80 miles) of a TV channel 10 station must submit an engineering study showing the means of avoiding interference within the Grade B contour of the TV station. Sections 80.475(b)(1) and 80.215(h)(2) - (4). Sections 80.215(h)(5) and 80.385(a)(2). Finally, if despite these precautions interference to TV reception is caused, Section 215(h)(4) requires the licensee to eliminate any interference caused within the Grade B contour of the TV station within 90 days of being notified by the Commission. If the interference is not eliminated within the 90 day period, operation of the offending coast station must be discontinued. That rule also requires the licensee to help resolve all complaints of interference, whether inside or outside the Grade B contour.
>
> A study was conducted to analyze the interference potential from AMTS systems to TV reception, R. Eckert, Guidance for Evaluating the Potential for Interference to TV from Stations of the Inland Waterways Communications Systems, FCC/OST TM 82-5 (July 1982). This report is a model for applicants to use in performing any required engineering analysis of potential interference from AMTS systems to TV reception. The analysis was based on very conservative interference protection criteria. The TV picture quality used for the analysis was "just perceptible" interference. Further, the analysis does not account for the interference reduction due to TV receiver antenna discrimination. That is, generally, the TV transmitter and the AMTS transmitter would

be in different directions from the TV receiver antenna. When that antenna is directed toward the TV station so as to enhance its reception, the AMTS signal, coming from a different direction, would tend to be suppressed.

Amendment of Parts 2 and 80 of the Commission's Rules Applicable to Automated Maritime Telecommunications Systems (AMTS), 3 FCC Rcd 4736 (1988), reiterated at 6 FCC Rcd 437 (1991). Hereinafter, RegioNet shall refer to FCC/OST TM 82-5 as the "Eckert Report".[2]

In adopting its initial frequency allocation, prior to the release of the Eckert Report, the Commission referred to its empirical basis for protection of television stations, explaining that to

> accurately assess the impact the use of the 216-220 MHz band by an inland waterways communications system would have on TV Channel 13 reception, we have utilized the more precise information contained in an earlier report prepared by the Commission's Laboratory Division. n22 This report (Project 2229-71) used five types of TV receivers as a sample, fed into them desired TV program material at measured input levels; imposed thereon an undesired (interfering) signal, also at measured input levels, at various frequencies from 216 through 225 MHz; and recorded the levels at which the undesired (interfering) signal produced "barely perceptible interference" on the video display. We have also conducted additional technical studies concerning this potential interference problem. (footnote omitted)
>
> n22 "Interference to TV Channels 11 and 13 from transmitters operating at 216 to 225 MHz", Project No. 2229-71, October 7, 1975. For the specific IWCS frequency allocation considered here, the interference problems actually involve only Channels 10 and 13.
>
> Using the test data from Project 2229-71, the engineering studies submitted, and our own technical investigation, we conclude that interference to Channel 13 would be perceptible on present-day TV receivers within a significant radius of ship and shore transmitters unless precautionary technical measures are employed. In addition, there may be interference to channel 10. However, we also conclude that those advocating the 216-220

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[2] Robert Eckert was the recipient of the Commission's Meritorious Service (Silver Medal) Award in 1997.

> MHz band allocation are correct in stating that appropriate engineering including frequency selection, shore station siting, use of directional receiving antennas and minimum transmit powers can overcome the interference problem. We note that the costs of such engineering have not been estimated and it appears that they may well be significant,

IWCS Order at 894.[3]

Yesterday's Engineering Is Not Giving Useful Results Today

The costs of engineering to applicants for AMTS stations have, indeed, been significant. The high cost of the required engineering (as much as $3,000 per site) may have been great enough to preclude more competition in the AMTS field. While the costs have not been prohibitive for the three existing licensees, they have been high enough to cause RegioNet to question whether the result of the prescribed engineering analysis is meaningful in today's electromagnetic and regulatory environments. Simply stated, RegioNet has asked, "Is our money doing any good for anyone?"

The practical experience of AMTS operators strongly suggests that there is no correlation between the results of the prescribed engineering analysis and the actual occurrence, if any, of AMTS interference to television reception. The Commission's records include only one documented case of AMTS interference to television reception, and that interference appears to have been related to a preamplifier external to the TV receiver. For nearly five years, Orion has operated an AMTS station at Santiago Peak, overlooking Los Angeles. While the required

[3] Although the IWCS Order refers to testing of "five types" of TV receivers, other references make clear that only five receivers were tested; each one of the five receivers was a singular representative of a different type.

engineering analysis of the Santiago Peak station shows a potential for interference to a population of nine million, neither Orion nor broadcasters have received any report of harmful interference from AMTS to TV reception.

As is clear from the Commission's explanations cited above, the Commission has based its standards for protection of television reception on the testing of five television receivers in 1975, when they might have been receiving the top rated "All in the Family" or "Happy Days" comedies. Those receivers in 1975 might have been tuned to news reports of President Ford's remarks on the fall of Saigon, or the click-tuners might have been rotated to the award of the Nobel Peace Prize to physicist Andrei Sakharov of the Union of Soviet Socialist Republics. They might have might have been tuned to sports reports about heavyweight champion Muhammed Ali or World Series MVP Pete Rose. The test viewers might have been watching for perceptible interference to news bulletins about the capture of heiress/terrorist Patty Hearst, or the wreck of the EDMUND FITZGERALD. Those receivers were probably never, ever connected to a cable television system (certainly not using a built-in F connector), because fewer than 16 percent of 1975 homes had cable; today, more than 67 percent of homes have cable. Hardly a TV is now alive that remembers that famous day and year of 1975. The time has come to take a fresh look and to make appropriate adjustments on the basis of 1999 information.

A visit to a large TV showroom will immediately lead even the casual viewer to recognize that receivers have improved greatly in recent years. Whereas it was once suggested, even within TV stations, that NTSC meant "Never Twice Same Color", a showroom full of sets

by various manufacturers today will show a remarkable uniformity of brightness, contrast, hue and saturation. Inside, today's receivers incorporate electronic tuning and other electronic parameter adjustments, surface acoustic wave filters, and circuitry with greater overhead against overload, to say nothing of the added consumer features of flat faced screen[4], infrared remote control of most parameters, stored control of channel access, stereo sound, timer, monitor inputs and outputs, closed captioned decoder, and the V-Chip.[5] The recognition that TV receivers are much better today than in 1975 led RegioNet to ask, "How much better?" In the language of television, let's ask the experts.

Technical Studies Show That The Prescribed Engineering Is Too Conservative

RegioNet has caused two technical studies to be performed. Exhibit I hereto is a report prepared by Professor A.E. Hall, of the Department of Electrical and Computer Engineering at

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[4] In 1975, undersigned counsel's TV set had a round cathode ray tube with a distinctly curved face.

[5] There have also been substantial improvements in broadcast technology which result in the transmission of a picture with much lower noise and distortion and much higher apparent resolution than in the days of "Happy Days". Cameras are cleaner (no more image orthicons, vidicons, or plumbicons®); lighting is better (all halogen); network signals arrive by satellite, rather than by terrestrial telephone company microwave; video recording is digital; sync is driven by atomic clocks and time base irregularities and conflicts are resolved in digital time base correctors, synchronizers, and frame stores, and signals are increasingly handled in the digital mode within the studio switching and routing gear, all leading to a transmitted signal which appears to be highly robust against degradation. Because the concern is with reception at the home receiver, rather than with the quality of transmission, RegioNet has not undertaken to evaluate broadcasters' transmission improvements, but believes that, if evaluated, the improvements would be found to contribute greatly to the quality of the received TV signal when confronted with RF interference.

California State Polytechnic Institute, titled, "Analysis of the Potential for Interference to Television Reception of Channel 13 by Base Station Transmitters in the Automated Maritime Telecommunications System" (the "Cal State Report"). Exhibit II is a new mathematical "Analysis of Potential Interference from Automated Maritime Telecommunications Service to NTSC TV Receivers," prepared by Allen Davidson (the "Davidson Report").

The Cal State Report develops a methodology for testing interference to television reception. The report then explains the testing which Cal State performed on some 50 TV receivers manufactured between 1981 and 1998 and provides graphic analysis of the results. The Cal State Report concludes that "the average television receiver has significantly increased performance over those tested in earlier studies conducted by Middlekamp & Davis, Eckert and H. Davis. The change in performance is between 25 to 38 dB better, depending on the frequency under consideration".

The Davidson Report applies additional information which has been gathered since the 1982 Eckert Report. The report suggests that the more modern Longley-Rice method (prescribed for Digital Television) should be used to predict TV coverage, and that new knowledge concerning temporal signal variations and polarization protection should be included in the analysis of possibility of interference. Davidson suggests that actual TV station operating height and power be used as input parameters to the formula of the Eckert Report.

Davidson concludes that a more modern consideration of the temporal correlation between TV and AMTS signals should find that the Eckert Report is too conservative by as much as 6.4 dB; that recognition of the difference between the polarization of TV and AMTS antennas indicates that the Eckert Report is too conservative by another 18 dB; and that using the actual height and power for predictive analysis should lead to a conclusion that yet another 6.5 dB of interference margin has been disregarded. Davidson observes, based on the Commission's findings, that Digital Television should experience an additional 25 dB of protection against AMTS interference, compared to an NTSC signal.

With engineering authorities in agreement that the method of the Eckert Report is too conservative by a large margin in today's electromagnetic and equipment environment, there should also be a re-evaluation of the AMTS engineering requirements in today's regulatory environment. Today, unlike the era of 18 to 25 years ago, Congress and the Commission have recognized the benefits to flow from ever increasing competition. While no one can say with certainty why there are only three AMTS licensees, some 18 years after the frequency allocation, the cost of engineering studies which appear not to be meaningful in the real world, combined with the cost of repeatedly litigating over engineering before the Commission, may be placing an unintended regulatory limit on competition. The limited geographic penetration of authorized AMTS systems suggests that the cost of engineering may also be frustrating the nationwide provision of AMTS service.

At some point, the Commission is likely to propose geographic licensing of the AMTS spectrum. RegioNet takes no position at this time on the desirability of geographic licensing, but a change would have to be made to the engineering requirement if there were to be geographic licensing. Geographic licensing has given the licensees broad latitude to select and to change station locations without further Commission action, but the elaborate engineering currently required for an AMTS station could prove to be a fatal impediment to flexible use of the spectrum by the licensee, resulting in minimal interest in competing for geographic licenses.

Proposals

Old ways must yield to new information and substantial experience. New technical information and analysis confirms RegioNet's practical experience that the prescribed method for determining the area of possible interference to TV reception is no longer meaningful. Experience with the operation of AMTS stations since 1982 has found no documented report of harmful interference directly to a TV receiver. The new information presented herein demonstrates that the measured potential for interference to today's TV receivers is substantially less than when the Commission adopted the Eckert Report. The requirement of the Commission's Rules for the filing of an engineering study in support of an AMTS application has lost its utility and should be eliminated.

AMTS licensees accept and will continue to accept their responsibility for avoiding harmful interference to TV reception, for eliminating any interference which may actually develop, and for resolving any complaints. In light of the years of experience in which there

has been a decisive absence of reported interference to TV reception, the Commission should eliminate the requirement for case-by-case analysis of the potential for interference and rely on the continued obligation by AMTS licensees to avoid and to eliminate harmful interference to television reception.

Elimination of the requirement should reduce or eliminate the potential for litigation between applicants and broadcasters, thereby leading to an earlier and more economical provision of new competitive service to the public, nationwide, while reducing the Commission's burden, as well.[6] Broadcasters, who have not been shown to have suffered in any way from AMTS service, will be able to continue to rely on AMTS licensees to avoid and to eliminate any harmful interference to television reception.

The Commission should continue to require the notification of all Channel 13 stations within 105 miles (169 kilometers) of a proposed AMTS site and notification of all Channel 10 stations within 80 miles (129 kilometers) of a proposed station,[7] consistent with the

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[6] There has been much expended on engineering studies and on litigation since 1981. Controversies to date have shown that the intent and meaning of the prescribed engineering studies has been misunderstood by some broadcasters. Some broadcasters have appeared to believe that the method of the Eckert Report defines an area within which interference is certain to occur, and some broadcasters have based their petitions to deny on assertions that interference would assuredly occur to thousands or millions of receivers. In fact, as shown herein, the method of the Eckert Report, based on 1975 receiver data, produces an exaggerated plot of the area within which it has been believed that just perceptible interference might possibly occur; everywhere outside of that area, interference is deemed not even to be a possibility.

[7] Improvements in the intermediate frequency circuitry of modern TV receivers raise a doubt whether interference to Channel 10 interception could ever occur today, but RegioNet has

Commission's current Rules. Although AMTS applications are placed on Public Notice, the notification requirement has been beneficial to both broadcasters and AMTS operators as both strive to serve in the public interest. Therefore, RegioNet does not suggest elimination of the notification requirement.

The Commission may desire to consider requiring an AMTS licensee to survey the public in search of harmful interference in certain areas of the nation. The Commission might consider requiring the submission of a survey plan such as that suggested at Attachment I hereto for AMTS stations within 105 miles of a Channel 13 station or within 80 miles of a Channel 10 station licensed to serve any of the Top 25 markets listed at Section 90.477 of the Commission's Rules. The submission of such a survey plan as part of RegioNet's most recently filed applications in major markets appears to have satisfied the concerns of broadcasters who had opposed earlier AMTS applications in those markets, and the Commission has been spared the burden on acting on protests of those applications.

The Commission has repeatedly recognized that the method of the Eckert Report is "very conservative". RegioNet has demonstrated herein that the current method is too conservative by 25 to 38 dB, given today's TV receivers and today's knowledge. While the Commission's better course is to eliminate the engineering requirement, if the Commission concludes, alternatively, that the filing of engineering studies should continue to be required, the

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not explored that matter in detail, since Channel 13 presents the more substantial concern.

Commission should take into account the findings of the Cal State Report and should revise the prescribed method as suggested by the Davidson Report.

Conclusion

For all the foregoing reasons, the Commission should commence a rule making proceeding looking toward the elimination of the AMTS engineering requirements.

Respectfully submitted,
REGIONET WIRELESS, LLC

By _____
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Dated: May 12, 1999

EXHIBIT I

California State Polytechnic University
Department of Electrical and Computer Engineering

Analysis of the Potential for Interference to Television Reception of Channel 13 by Base Station Transmitters in the Automated Maritime Telecommunications System (AMTS)

Professor A. E. Hull
Principal Investigator

April 16, 1999

Pomona, California 91768

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Overview

This study presents empirical testing, performed in the Department of Electrical and Computer Engineering, California State Polytechnic University, on behalf of Regionet Wireless. All measurements were made by University staff, working as independent investigators.

This study examines the performance of approximately 50 television receivers in relation to co-channel signals, as may be received from the Automated Maritime Telecommunications System (AMTS).

Channel 13 television broadcasters are assigned a spectrum allocation from 210-216 MHz. The AMTS broadcast spectrum is from 217-218 MHz and 219-220 MHz. In order to assess any possible negative effect of AMTS transmissions on channel 13 television reception, the University staff tested frequencies from 216-220 MHz in 0.5 MHz steps. It should be noted that while tests were performed over the entire four megahertz range, only the two regions, from 217-218 and 219-220 Mhz, are of particular interest, as the remaining spectrum is used by other services.

In general, it can be assumed that as the frequency of the potential interfering signal approaches the frequency band of the channel 13 Broadcaster interference to reception is more likely to occur. Of principal interest is the level of energy required to produce "just perceptible" interference to the reception of the channel 13 broadcasts.

Sample Selection

In choosing a sample set of television receivers to be tested, the University staff chose television receivers in private homes, in residential communities in Los Angeles, Orange, and San Bernardino Counties, CA. All of the receivers tested were located within the B-grade contour of KCOP Channel 13, the local Los Angeles area broadcaster. The make, model, serial number, and approximate age of the receivers were recorded as part of the testing criteria. This random selection of television receivers represents a reasonably accurate cross-section of the television receivers to be found in the general population.

Test Set-Up

In the past, other tests [1,2,3] have been performed using a small number of television receivers using over-the-air reception and a "test" AMTS transmitter. In this study the University staff opted for a methodology more closely corresponding to the real world.

By definition, the University staff considered "just perceptible" interference to occur when the visual signal of channel 13 appeared minimally degraded from a normal viewing distance of 10-12 feet.

To determine at what power level "just perceptible" interference might occur for a channel 13 signal, the broadcast signal was combined with an interfering 1 kHz FM modulated AMTS signal. As used in previous studies [1,2,3], the University staff assumed –65 dBm as the minimum signal required for acceptable TV reception. This level is well below the signal level that would normally be expected from cable companies.

The received television signals, off-the-air or from a cable, were converted from 75 ohms to 50 ohms using a Matching Pad (JFW Model 57ZT) designed to operate over a frequency range of 0.5 - 300 MHz with a maximum insertion loss of 0.75 dB.

The received signal was then fed through a 50 ohm step Attenuator (Kay Elemetrics Corp. Model 839) designed to operate from DC to 2GHz. The attenuator was used to reduce the signal to –65 dBm, the minimum power level suggested by the FCC for acceptable television viewing.

From the output of the step attenuator the signal was connected to one input of a Combiner (Mini-Circuits Model ZFSZ-2-1) designed to operate in the frequency range of 5-500 MHz. The other input to the combiner was connected to a WaveTek (Model 3006) signal generator. The insertion loss through this combiner was 0.8dB above the 3dB due to the division of the signal.

The WaveTek signal generator was used to produce the interfering signal, modulated with a 1kHz tone. This signal generator was tested with a calibrated Hewlett-Packard Spectrum Analyzer (Model 8591EM), and it was found to be linear over the frequency ranges of interest and the second harmonic was below the fundamental by 35dB.

Another JFW Model 57ZT Matching Pad was placed on the output of the combiner so as to convert the combined signal back to 75 ohms. This output was connected to a coaxial switch capable of switching between two outputs.

Output A of the AB Switch, as shown in figure 1, was connected to a Sadelco (Model Minimax 800, Serial No. LT2163) frequency selective signal meter. The Sadelco meter was configured to measure the average power level of channel 13 (210-216 MHz). The meter was supplied with an active certificate of calibration showing compliance with National Standards (HP Power Sensor Model 8484A, Serial No. 1528A00225 and HP Digital Power Meter Model 436A, Serial No. 1611A00620).

Output B, as shown in figure 1, was connected to the television test under test.

Test Procedure

When testing a television receiver, the incoming signal was connected to the Sadelco frequency selective signal level meter. With the step attenuator, the signal was adjusted to –65 dBm which corresponds to –16.2 dBmv (the meter reads average voltage in the 4MHz Bandwith of channel 13). Once that power level had been acquired, taking into account all system and impedance conversion losses, the signal was directed to the television receiver via the AB switch. At this point, the WaveTek generator (interfering signal) is presented to the television receiver and the test to determine interference was performed in 0.5 MHz increments over a frequency range from 216MHz to 220 MHz .

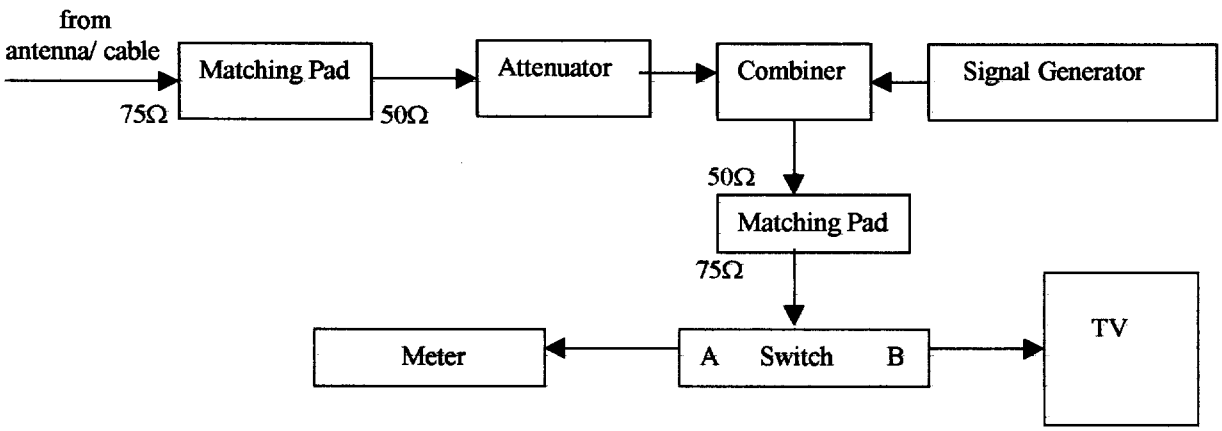

Figure 1. Test Set-Up

The interfering signal power level is increased until the viewer at a viewing distance of 10-12 feet notes "just perceptible" interference. This test is repeated at each frequency under test.

Data Collection

The data collected in this study is graphically represented as the maximum undesired signal level possible versus frequency of interfering signal. The undesired signal level is that necessary to produce "just perceptible" interference with the channel 13 video at various frequencies.

It was observed that relatively high power signal levels are required to produce perceptible Channel 13 video image deterioration at the interfering frequencies of 216 Mhz to 216.5 MHz. The average of all television receivers tested is presented in figure 2. The vertical axis of Figure 2 represents the signal level at which interference was just perceptible.

The data for each television receiver tested is presented graphically in Appendix A, figures A3 through A47.

While some television receivers were tested with off-the-air reception, the preponderance of television receives tested were served by commercial cable systems. Had it not been that various cable television providers delivered a sub-standard signal level, a significantly higher number of TV sets would have been tested in the time allowed. The power measured on some homes in the Placentia, Fullerton, Arcadia, and Irvine areas ranged between –68 and –78 dBm. Even then, the televisions tested at this low signal level produced results no worse than when the broadcast input power was at –65 dBm, as it shows in the tabulated data in appendix A for televisions 48 through 51.

Data Interpretation

Modern television receivers, in general, perform very well even in the presence of relatively strong, adjacent channel interfering signals. AMTS signals in the frequency range from 217 to 218 MHz (those designated for high power base stations installations) can exhibit power levels, at a minimum, some 25 dB higher than -65 dBm, before just perceptible interference may occur. At frequencies above 217.5 MHz this "headroom" rises to over 30 dB, or a power factor of 1000 times. In the frequency range from 219 to 220 MHz this number increases even more and approaches 38 dB.

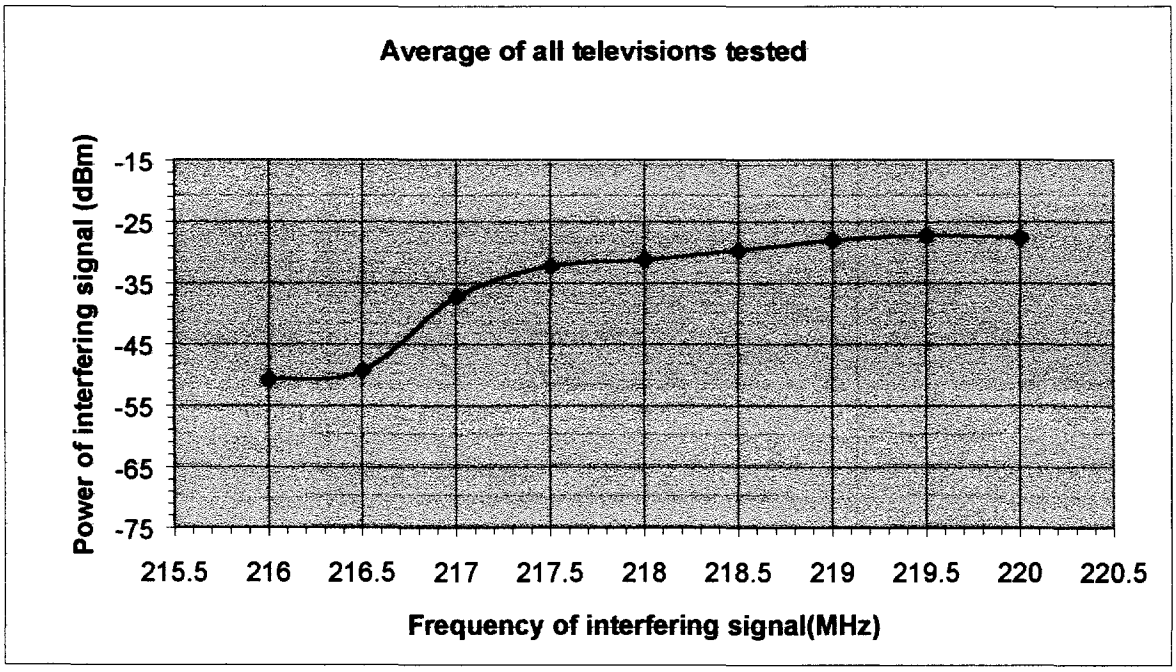

Figure 2

Conclusions

The following observations can be made:

- It would appear, from the tests performed in this study, that the average television receiver has significantly increased performance over those tested in earlier studies conducted by Middlekamp & Davis, Eckert and H. Davis. This change in performance is something between 25 to 38 dB better, depending on the frequency under consideration.

- Only eleven television receivers, out of the 53 tested, were actually receiving broadcast material off-the-air, either because they did not have cable going to their homes or they did not want to pay the high cable fees. The majority of households receive television broadcast signals via cable, where the possibility of interference from AMTS systems is virtually nonexistent. When deregulation of cable companies occurs, the number of television receivers using cable will increase. The actual number of television receivers, that will continue to receive broadcast television off-the-air, that could potentially be adversely affected by AMTS signals, would appear to be very small indeed.

References

1. L. Middlekamp, H. Davis, Interference to TV channels 11 and 13 from Transmitters Operating at 216-225 MHz, FCC Lab Division Report, Project No. 2229-71, Oct. 1975

2. H. Davis, Field Tests of 216 to 220 MHz transmitters for Compatibility with TV Channels 13 and 10. OST Technical Memorandum, FCC/OST TM82-4, July 1982

3. R. Eckert, Guidance for Evaluating the Potential for Interference to TV from Stations in the Inland Waterways Communications Systems, OST Technical Memorandum FCC/OST TM82-5, July 1982

Appendix A

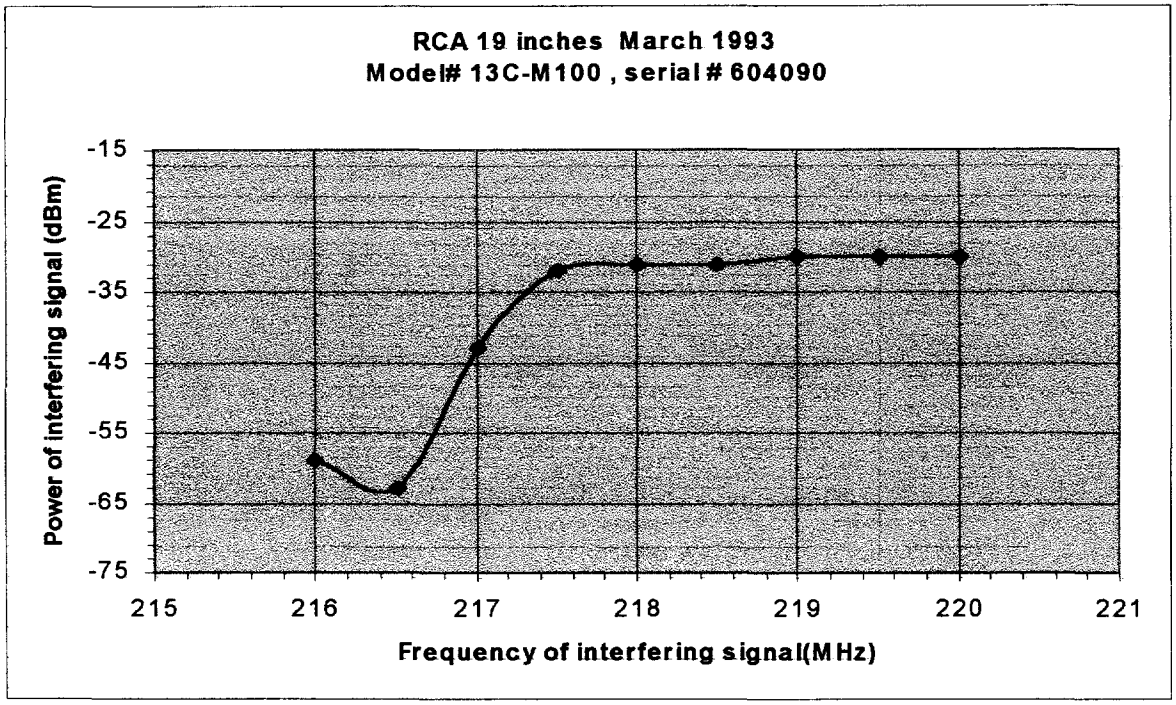

Figure A1

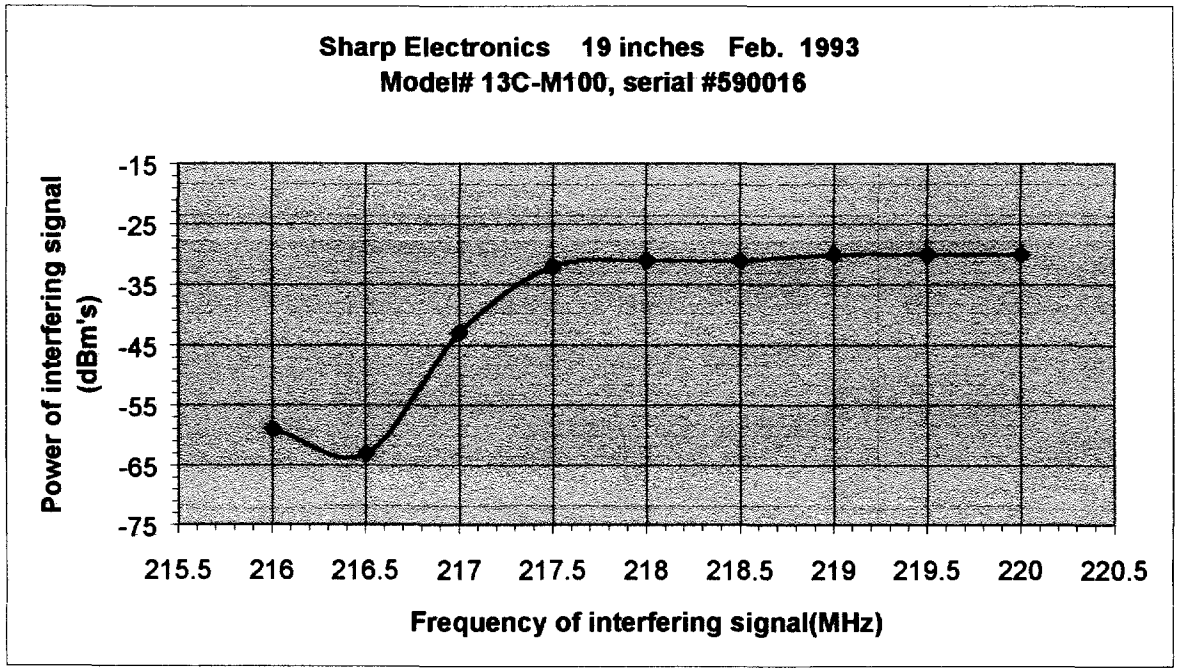

Figure A2

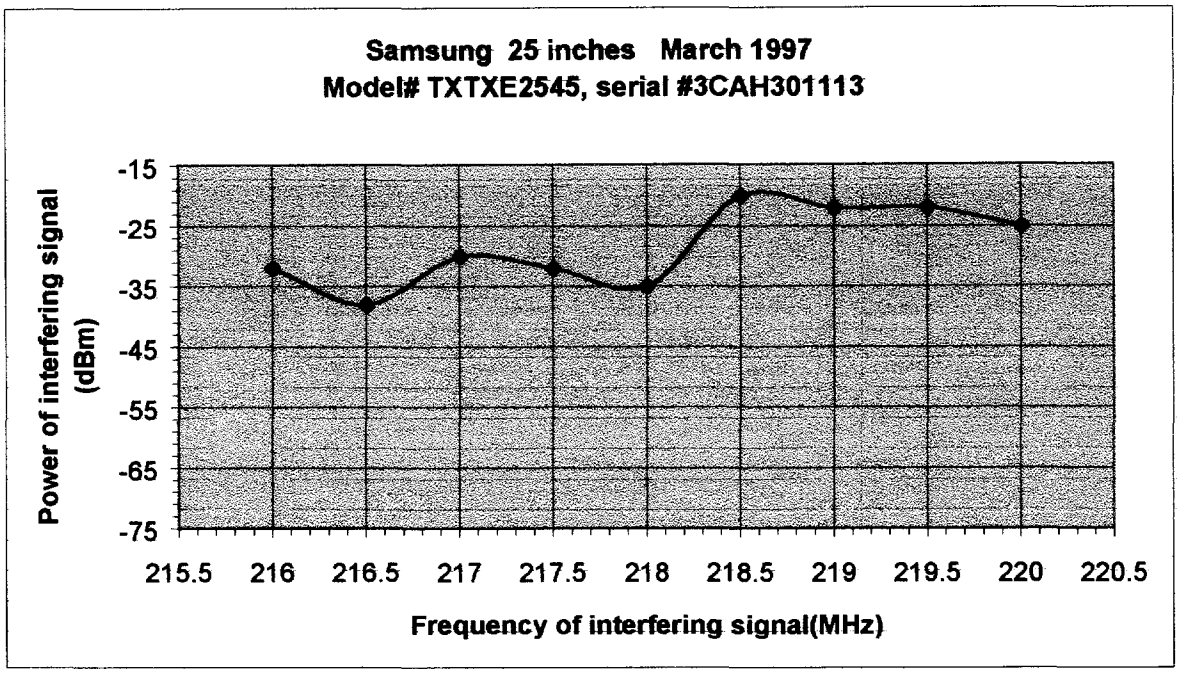

Figure A3

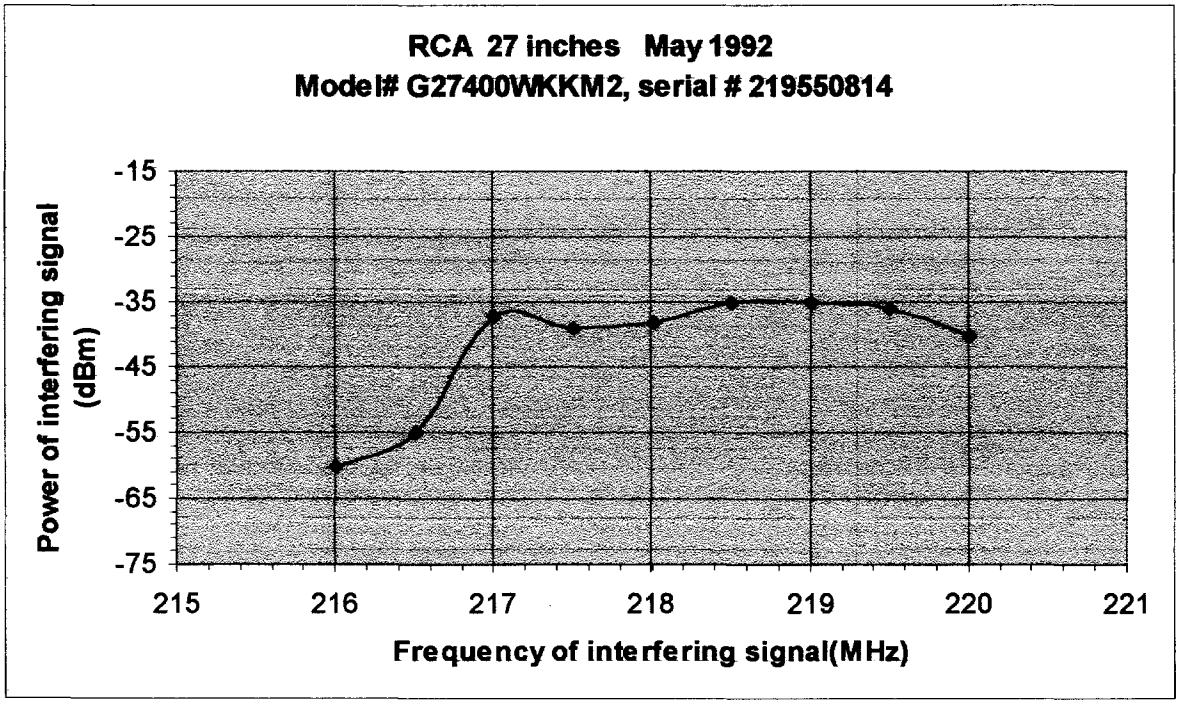

Figure A4

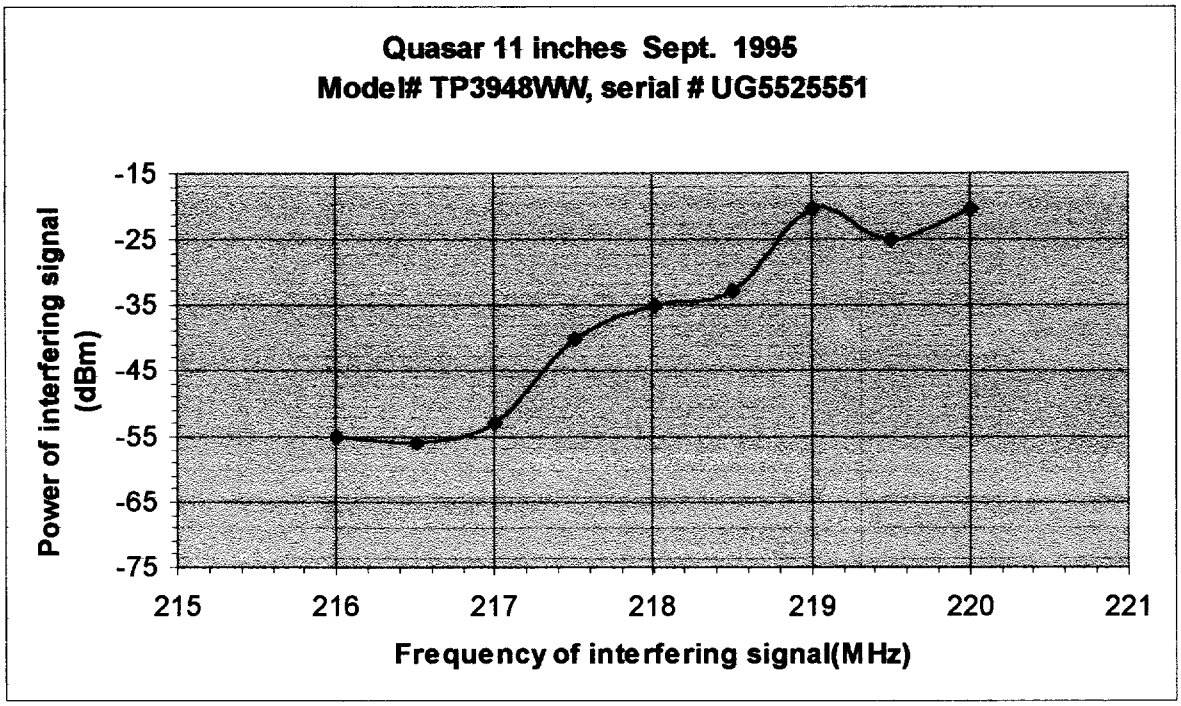

Figure A5

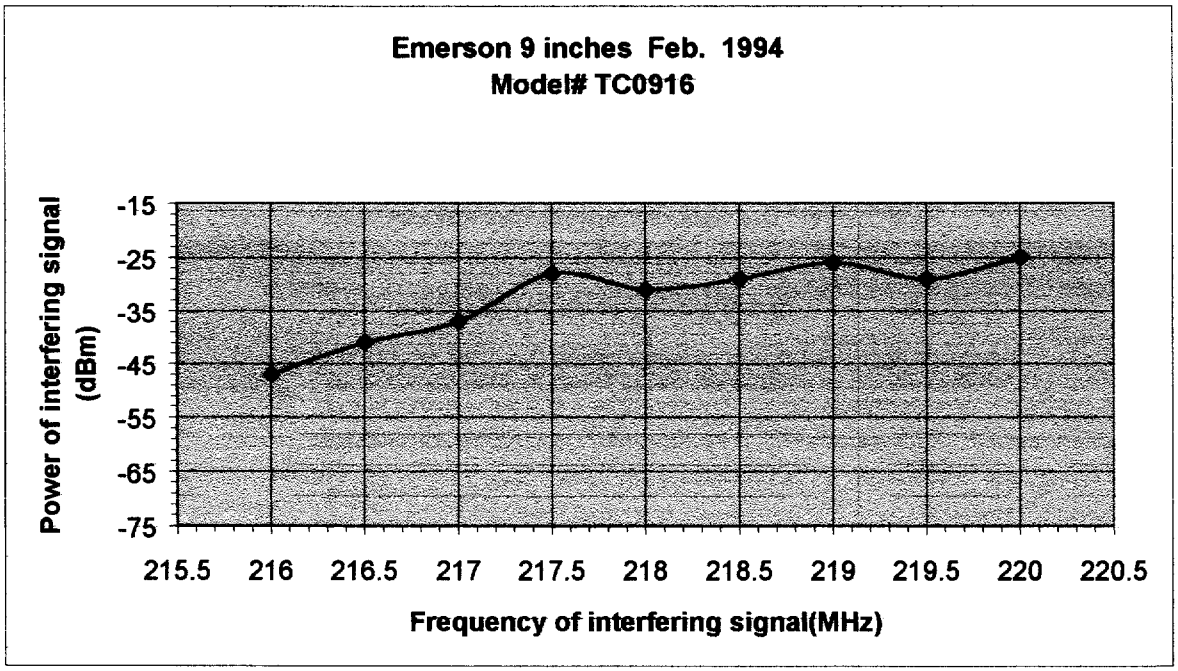

Figure A6

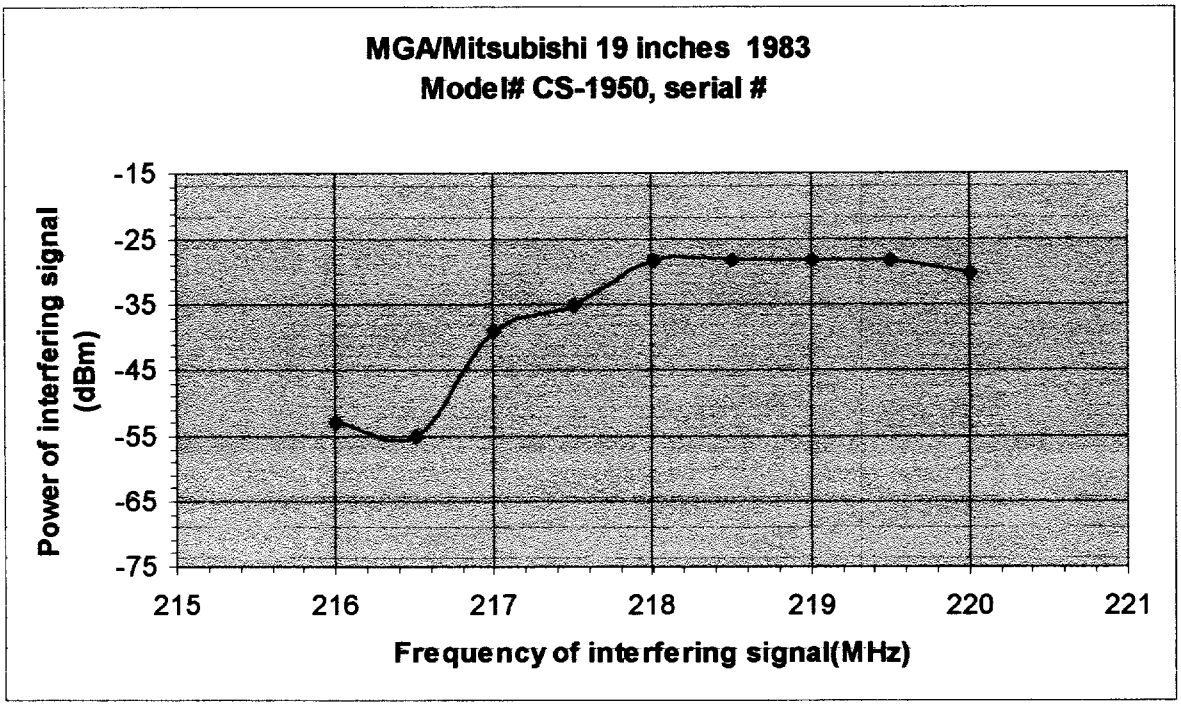

Figure A7

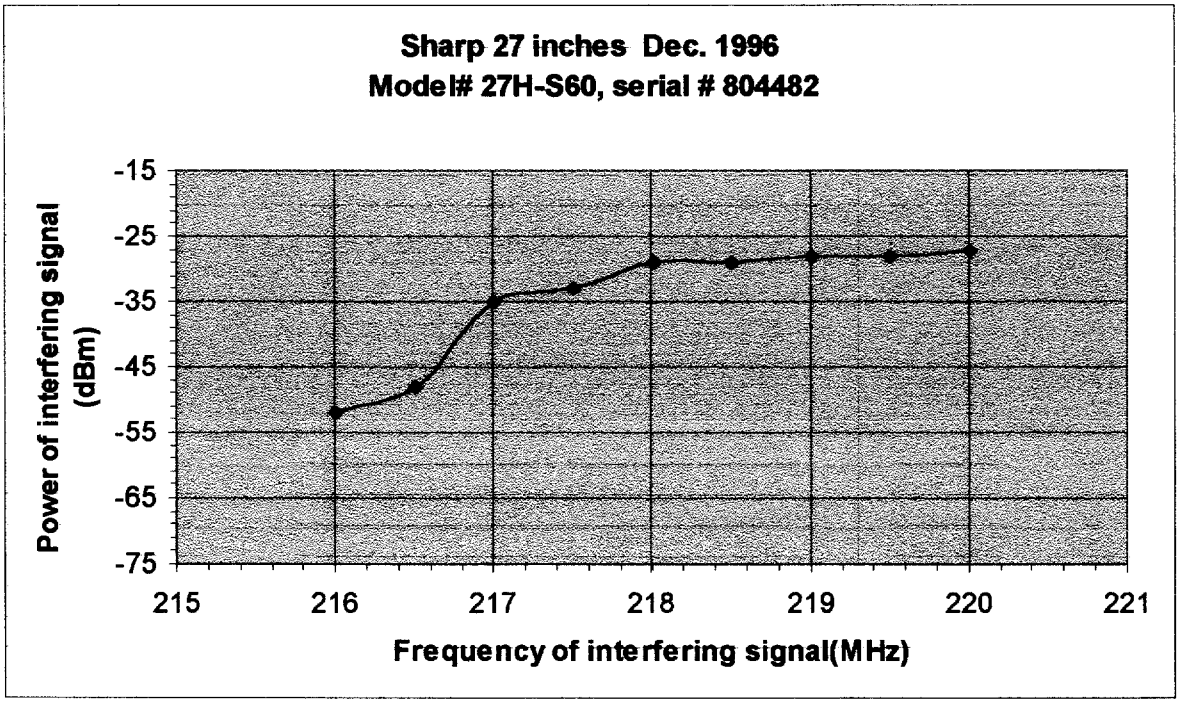

Figure A8

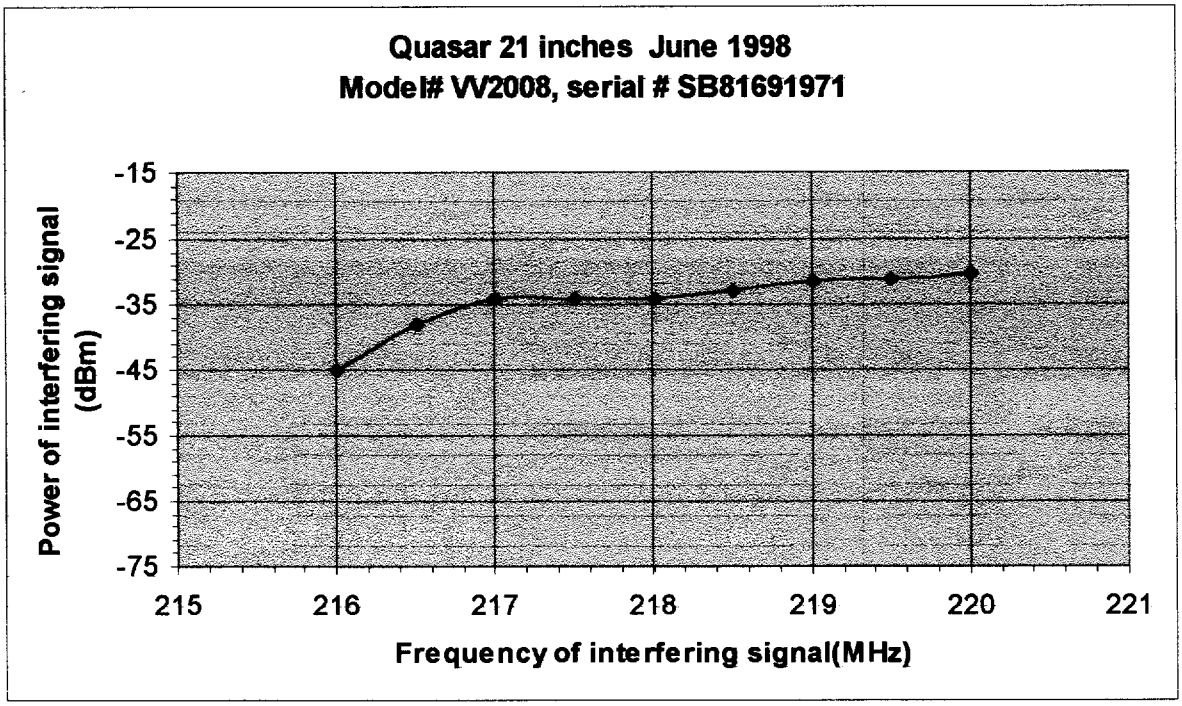

Figure A9

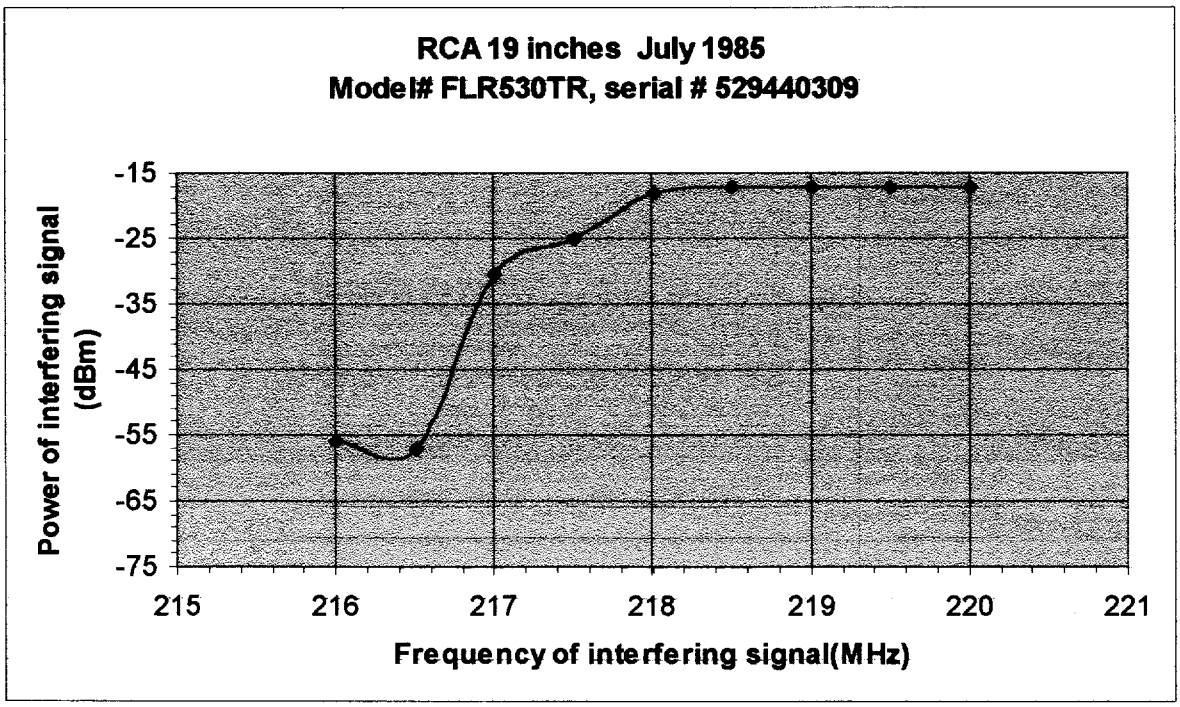

Figure A10

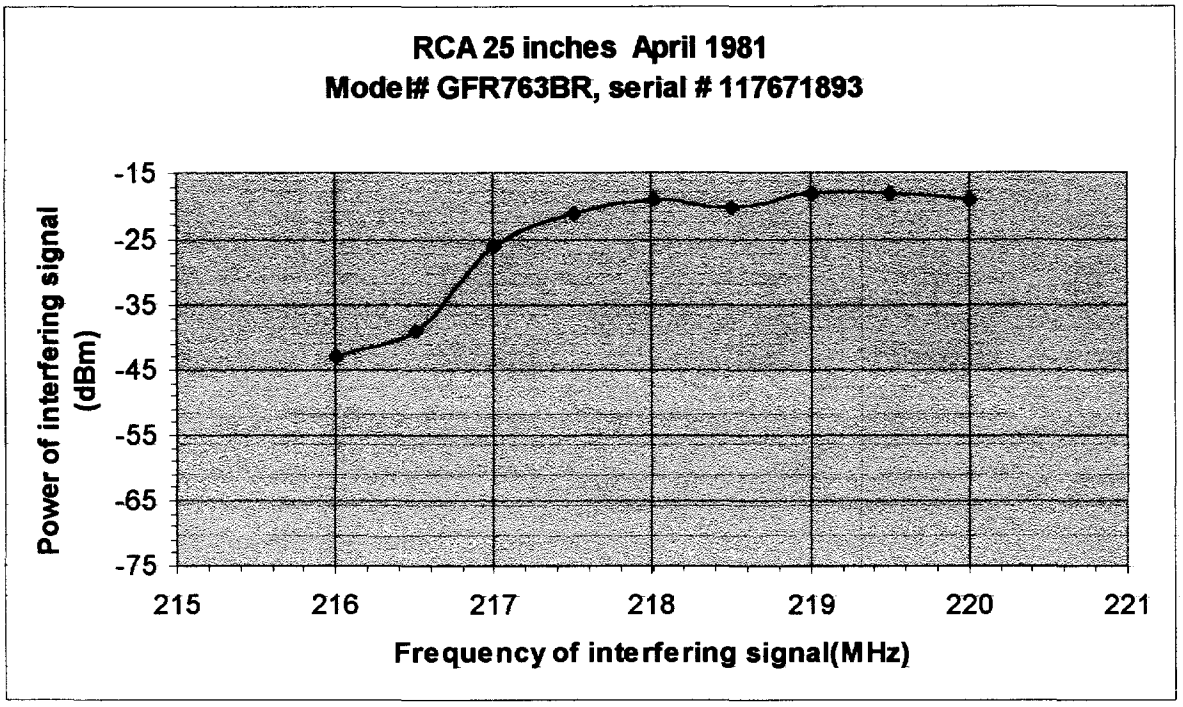

Figure A11

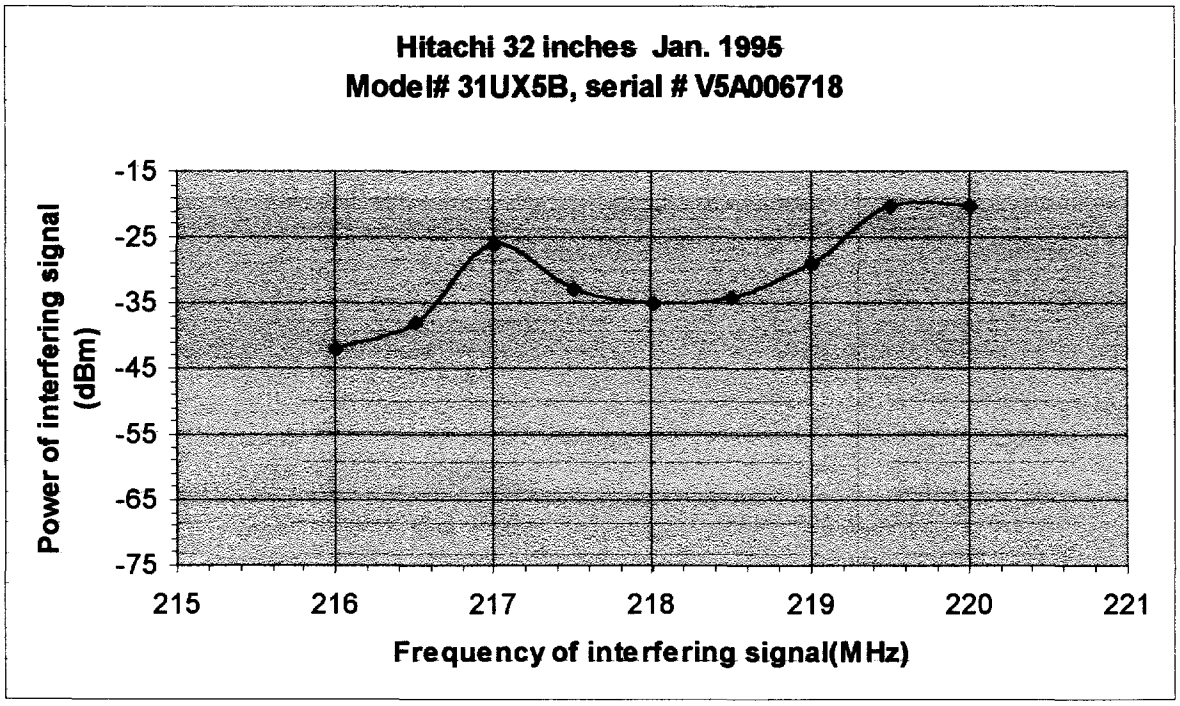

Figure A12